ABSTRACT

DECODING LOW DENSITY PARITY CHECK CODES

5   A method for decoding Low Density Parity Check (LDPC) codes comprises executing a sum

product algorithm to recover a set of information bits from an LDPC code represented as a

bipartite graph of symbol nodes and check nodes, the sum product algorithm being responsive to

input log likelihood ratios associated with the symbol nodes. The check nodes are updated by

generating a set of forward difference metrics and a set of backward difference metrics in

10   dependence on the ratios of logarithmic probabilities each associated with a corresponding

symbol node of the LDPC code, updating each metric in the set of forward difference metrics in

dependence on the absolute value of the log likelihood ratio associated with the symbol node and

the absolute value of the previous metric in the set, updating each metric in the set of backward

difference metrics in dependence on the absolute value of the log likelihood ratio associated with

15   the symbol node and the absolute value of the previous metric in the set, and generating log

likelihood ratios to be propagated back to each symbol node in dependence on the updated sets of

forward and backward difference metrics.